Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

1-132. (Canceled)

133. (Previously Presented) A light emitting device comprising:

a first electrode;

a hole transporting region comprising a hole transporting material adjacent to the first electrode;

a light emitting region comprising a first layer over the hole transporting region, a second layer over the first layer, and a light emitting layer sandwiched between the first layer and the second layer,

an electron transporting region over the second layer, the electron transporting region comprising an electron transporting material; and

a second electrode over the electron transporting region,

wherein the first layer, the second layer, and the light emitting layer comprise the hole transporting material and the electron transporting material,

wherein the light emitting layer further comprises a dopant, and

wherein the second layer further comprises a blocking material.

134. (Previously Presented) A light emitting device comprising:

an anode;

a hole transporting region comprising a hole transporting material adjacent to the anode;

a light emitting region comprising a first layer over the hole transporting region, a second layer over the first layer, and a light emitting layer sandwiched between the first layer and the second layer,

an electron transporting region over the second layer, the electron transporting region comprising an electron transporting material; and

a cathode over the electron transporting region,

wherein the first layer, the second layer, and the light emitting layer comprise the hole transporting material and the electron transporting material,

wherein the light emitting layer further comprises a dopant, and

wherein the second layer further comprises a blocking material.

135. (Previously Presented) A light emitting device comprising:

a first electrode;

a hole transporting region comprising a hole transporting material adjacent to the first electrode;

a light emitting region comprising a first layer over the hole transporting region, a second layer over the first layer, and a light emitting layer sandwiched between the first layer and the second layer,

an electron transporting region over the second layer, the electron transporting region comprising an electron transporting material; and

a second electrode over the electron transporting region,

wherein the first layer, the second layer, and the light emitting layer comprise the hole transporting material and the electron transporting material,

wherein the light emitting layer further comprises a dopant,

wherein the second layer further comprises a blocking material, and

wherein the dopant is a triplet light emitting material.

136. (Previously Presented) A light emitting device comprising:

an anode;

a hole transporting region comprising a hole transporting material adjacent to the anode;

a light emitting region comprising a first layer over the hole transporting region, a second layer over the first layer, and a light emitting layer sandwiched between the first layer and the second layer,

an electron transporting region over the second layer, the electron transporting region comprising an electron transporting material; and

a cathode over the electron transporting region,

wherein the first layer, the second layer, and the light emitting layer comprise the hole transporting material and the electron transporting material,

wherein the light emitting layer further comprises a dopant,

wherein the second layer further comprises a blocking material, and

wherein the dopant is a triplet light emitting material.

137-152. (Canceled)

153. (Previously Presented) A light emitting device according to claim 133,

wherein at least one of the first electrode and the second electrode is light-transmissive.

154. (Previously Presented) A light emitting device according to claim 134,

wherein at least one of the anode and the cathode is light-transmissive.

155. (Previously Presented) A light emitting device according to claim 133,

wherein the light emitting region has a thickness of 30 nm or more.

156. (Previously Presented) A light emitting device according to claim 133,

wherein the light emitting layer has a thickness of 10 to 20 nm.

157. (Currently Amended) A light emitting device according to claim 133,

wherein the light emitting device is an electric apparatus selected from a display device, a video camera, a digital camera, an image reproducing device, a mobile portable computer, a personal computer, a cellular phone, and an audio device.

158. (Previously Presented) A light emitting device according to claim 134,

wherein the light emitting region has a thickness of 30 nm or more.

159. (Previously Presented) A light emitting device according to claim 134,

wherein the light emitting layer has a thickness of 10 to 20 nm.

160. (Currently Amended) A light emitting device according to claim 134,

wherein the light emitting device is an electric apparatus selected from a display device, a video camera, a digital camera, an image reproducing device, a mobile portable computer, a personal computer, a cellular phone, and an audio device.

161. (Previously Presented) A light emitting device according to claim 135,

wherein at least one of the anode and the cathode is light-transmissive.

162. (Previously Presented) A light emitting device according to claim 136,

wherein at least one of the anode and the cathode is light-transmissive.

163. (Previously Presented) A light emitting device according to claim 135,

wherein the light emitting region has a thickness of 30 nm or more.

164. (Previously Presented) A light emitting device according to claim 135,

wherein the light emitting layer has a thickness of 10 to 20 nm.

165. (Currently Amended) A light emitting device according to claim 135,

wherein the light emitting device is an electric apparatus selected from a display device, a video camera, a digital camera, an image reproducing device, a mobile portable computer, a personal computer, a cellular phone, and an audio device.

166. (Previously Presented) A light emitting device according to claim 136,

wherein the light emitting region has a thickness of 30 nm or more.

167. (Previously Presented) A light emitting device according to claim 136,

wherein the light emitting layer has a thickness of 10 to 20 nm.

168. (Currently Amended) A light emitting device according to claim 136,

wherein the light emitting device is an electric apparatus selected from a display device, a video camera, a digital camera, an image reproducing device, a mobile portable computer, a personal computer, a cellular phone, and an audio device.

169-172. (Canceled)

173. (Previously Presented) A light emitting device according to claim 133,

wherein the dopant comprises an organic compound.

174. (Previously Presented) A light emitting device according to claim 134,

wherein the dopant comprises an organic compound.

175. (Previously Presented) A light emitting device according to claim 135,

wherein the dopant comprises an organic compound or a complex having platinum or iridium as a central metal.

176. (Previously Presented) A light emitting device according to claim 136, wherein the dopant comprises an organic compound or a complex having platinum or iridium as a central metal.

177-180. (Canceled)

181. (Previously Presented) A light emitting device according to claim 173, wherein the organic compound is at least one selected from the group of tris (2-phenylpyridine) iridium, 2, 3, 7, 8, 12, 13, 17, 18-octaethyl-21H, 23H-porphyrin-platinum, perylene, rubrene, and 4-(dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran.

182. (Previously Presented) A light emitting device according to claim 174, wherein the organic compound is at least one selected from the group of tris (2-phenylpyridine) iridium, 2, 3, 7, 8, 12, 13, 17, 18-octaethyl-21H, 23H-porphyrin-platinum, perylene, rubrene, and 4-(dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran.

183. (Previously Presented) A light emitting device according to claim 175, wherein the organic compound is at least one selected from the group of tris (2-phenylpyridine) iridium, 2, 3, 7, 8, 12, 13, 17, 18-octaethyl-21H, 23H-porphyrin-platinum, perylene, rubrene, and 4-(dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran.

184. (Previously Presented) A light emitting device according to claim 176, wherein the organic compound is at least one selected from the group of tris (2-phenylpyridine) iridium, 2, 3, 7, 8, 12, 13, 17, 18-octaethyl-21H, 23H-porphyrin-platinum, perylene, rubrene, and 4-(dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran.

185-188. (Canceled)

189. (Previously Presented) A light emitting device according to claim 133,

wherein the hole transporting material is at least one selected from the group of 4, 4'-bis [N-(3-methylphenyl)-N-phenyl-amino]-biphenyl, 4, 4'-bis [N-(1-naphthyl)-N-phenyl-amino]-biphenyl,

4, 4', 4"-tris (N, N-diphenyl-amino)-triphenylamine, and 4, 4', 4"-tris [N-(3-methylphenyl)-N-phenyl-amino]-triphenylamine.

190. (Previously Presented) A light emitting device according to claim 134,

wherein the hole transporting material is at least one selected from the group of 4, 4'-bis [N-(3-methylphenyl)-N-phenyl-amino]-biphenyl, 4, 4'-bis [N-(1-naphthyl)-N-phenyl-amino]-biphenyl,

4, 4', 4"-tris (N, N-diphenyl-amino)-triphenylamine, and 4, 4', 4"-tris [N-(3-methylphenyl)-N-phenyl-amino]-triphenylamine.

191. (Previously Presented) A light emitting device according to claim 135,

wherein the hole transporting material is at least one selected from the group of 4, 4'-bis [N-(3-methylphenyl)-N-phenyl-amino]-biphenyl, 4, 4'-bis [N-(1-naphthyl)-N-phenyl-amino]-biphenyl,

4, 4', 4"-tris (N, N-diphenyl-amino)-triphenylamine, and 4, 4', 4"-tris [N-(3-methylphenyl)-N-phenyl-amino]-triphenylamine.

192. (Previously Presented) A light emitting device according to claim 136,

wherein the hole transporting material is at least one selected from the group of 4, 4'-bis [N-(3-methylphenyl)-N-phenyl-amino]-biphenyl, 4, 4'-bis [N-(1-naphthyl)-N-phenyl-amino]-biphenyl,

4, 4', 4"-tris (N, N-diphenyl-amino)-triphenylamine, and 4, 4', 4"-tris [N-(3-methylphenyl)-N-phenyl-amino]-triphenylamine.

193-196. (Canceled)

197. (Previously Presented) A light emitting device according to claim 133,

wherein the electron transporting material is at least one selected from the group of tris (8-quinolinolato) aluminium, tris (4-methyl-8-quinolinolato) aluminium, bis (10-hydroxybenzo[h]-quinolinato) beryllium, bis (2-methyl-8-quinolinolato)-(4-phenylphenolate)-aluminium, bis [2-(2-hydroxyphenyl)-benzoxazolato] zinc, bis [2-(2-hydroxyphenyl)-benzothiazolato] zinc, 2-(4-biphenylyl)-5-(4-tert-butylphenyl)-1, 3, 4-oxadiazole, 1, 3-bis[5-(p-tert-butylphenyl)-1, 3, 4-oxadiazole-2-il] benzene, 5-(4-biphenylyl)-3-(4-tert-butylphenyl)-4-phenyl-1, 2, 4-triazole, 5-(4-biphenylyl)-3-(4-tert-butylphenyl)-4-(4-ethylphenyl-1, 2, 4-triazole, bathophenanthroline, and bathocuproine.

198. (Previously Presented) A light emitting device according to claim 134,

wherein the electron transporting material is at least one selected from the group of tris (8-quinolinolato) aluminium, tris (4-methyl-8-quinolinolato) aluminium, bis (10-hydroxybenzo[h]-quinolinato) beryllium, bis (2-methyl-8-quinolinolato)-(4-phenylphenolate)-aluminium, bis [2-(2-hydroxyphenyl)-benzoxazolato] zinc, bis [2-(2-hydroxyphenyl)-benzothiazolato] zinc, 2-(4-biphenylyl)-5-(4-tert-butylphenyl)-1, 3, 4-oxadiazole, 1, 3-bis[5-(p-tert-butylphenyl)-1, 3, 4-oxadiazole-2-il] benzene, 5-(4-biphenylyl)-3-(4-tert-butylphenyl)-4-phenyl-1, 2, 4-triazole, 5-(4-biphenylyl)-3-(4-tert-butylphenyl)-4-(4-ethylphenyl-1, 2, 4-triazole, bathophenanthroline, and bathocuproine.

199. (Previously Presented) A light emitting device according to claim 135,

wherein the electron transporting material is at least one selected from the group of tris (8-quinolinolato) aluminium, tris (4-methyl-8-quinolinolato) aluminium, bis (10-hydroxybenzo[h]-quinolinato) beryllium, bis (2-methyl-8-quinolinolato)-(4-phenylphenolate)-aluminium, bis [2-(2-hydroxyphenyl)-benzoxazolato] zinc, bis [2-(2-hydroxyphenyl)-benzothiazolato] zinc, 2-(4-biphenylyl)-5-(4-tert-butylphenyl)-1, 3, 4-oxadiazole, 1, 3-bis[5-(p-

tert-butylphenyl)-1, 3, 4-oxadiazole-2-il] benzene, 5-(4-biphenylyl)-3-(4-tert-butylphenyl)-4-phenyl-1, 2, 4-triazole, 5-(4-biphenylyl)-3-(4-tert-butylphenyl)-4-(4-ethylphenyl-1, 2, 4-triazole, bathophenanthroline, and bathocuproine.

200. (Previously Presented) A light emitting device according to claim 136,

wherein the electron transporting material is at least one selected from the group of tris (8-quinolinolato) aluminium, tris (4-methyl-8-quinolinolato) aluminium, bis (10-hydroxybenzo[h]-quinolinato) beryllium, bis (2-methyl-8-quinolinolato)-(4-phenylphenolate)-aluminium, bis [2-(2-hydroxyphenyl)-benzoxazolato] zinc, bis [2-(2-hydroxyphenyl)-benzothiazolato] zinc, 2-(4-biphenylyl)-5-(4-tert-butylphenyl)-1, 3, 4-oxadiazole, 1, 3-bis[5-(p-tert-butylphenyl)-1, 3, 4-oxadiazole-2-il] benzene, 5-(4-biphenylyl)-3-(4-tert-butylphenyl)-4-phenyl-1, 2, 4-triazole, 5-(4-biphenylyl)-3-(4-tert-butylphenyl)-4-(4-ethylphenyl-1, 2, 4-triazole, bathophenanthroline, and bathocuproine.

201. (New) A light emitting device according to claim 133,

wherein an energy difference between a highest occupied molecular orbit and a lowest unoccupied molecular orbit of the blocking material is larger than an energy difference between a highest occupied molecular orbit and a lowest unoccupied molecular orbit of the hole transporting material and the electron transporting material.

202. (New) A light emitting device according to claim 134,

wherein an energy difference between a highest occupied molecular orbit and a lowest unoccupied molecular orbit of the blocking material is larger than an energy difference between a highest occupied molecular orbit and a lowest unoccupied molecular orbit of the hole transporting material and the electron transporting material.

203. (New) A light emitting device according to claim 135,

wherein an energy difference between a highest occupied molecular orbit and a lowest unoccupied molecular orbit of the blocking material is larger than an energy difference between a highest occupied molecular orbit and a lowest unoccupied molecular orbit of the hole transporting material and the electron transporting material.

204. (New) A light emitting device according to claim 136,

wherein an energy difference between a highest occupied molecular orbit and a lowest unoccupied molecular orbit of the blocking material is larger than an energy difference between a highest occupied molecular orbit and a lowest unoccupied molecular orbit of the hole transporting material and the electron transporting material.

205. (New) A light emitting device according to claim 133,

wherein, in any of the first layer, the second layer, and the light emitting layer, a concentration of the hole transporting material gradually decreases toward the cathode from the anode and a concentration of the electron transporting material gradually increases toward the cathode from the anode.

206. (New) A light emitting device according to claim 134,

wherein, in any of the first layer, the second layer, and the light emitting layer, a concentration of the hole transporting material gradually decreases toward the cathode from the anode and a concentration of the electron transporting material gradually increases toward the cathode from the anode.

207. (New) A light emitting device according to claim 135,

wherein, in any of the first layer, the second layer, and the light emitting layer, a concentration of the hole transporting material gradually decreases toward the cathode from the

anode and a concentration of the electron transporting material gradually increases toward the cathode from the anode.

208. (New) A light emitting device according to claim 136,

wherein, in any of the first layer, the second layer, and the light emitting layer, a concentration of the hole transporting material gradually decreases toward the cathode from the anode and a concentration of the electron transporting material gradually increases toward the cathode from the anode.